# RISK ASSESSMENT

- **INTRODUCTION**

Risk Assessment broadly looks at various aspects related to disaster management, resource conservation.

- **RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN**
  Residential Group Housing Society project encompasses the lives of a large number of people. It also involves installation of various structures and machineries that meet the comfort and needs of its population but may also pose serious threat to the occupants in case of an accident. It is thus considered necessary to carry out a risk assessment and disaster management plan for the project.

- **Risk Hazard & its control measures**
  It is attempted to plan and construct the buildings following all safety norms. However, it is not always possible to totally eliminate such eventualities and random failures of equipment or human errors. An essential part of major hazard control has therefore, to be concerned with mitigating the effects of such emergency and restoration of normalcy at the earliest. A detailed table showing activities during construction and operation phase along with mitigation measures are given in Table.

**Activities during construction and operation along with mitigation measures**

| HAZARDS ASSOCIATED WITH ACTIVITIES (During Construction & Operation) | CONTROL/MITIGATION MEASURES |
|---|---|
| **Manual Handling**<br>**Strains and sprains - incorrect lifting – tooheavy loads -twisting - bending – repetitivemovement - body vibration.** | Exercise/warm up - get help when needed -control loads - rest breaks/no exhaustion - no rapid movement/twisting/bending/repetitive movement – good housekeeping |
| **Falls - Slips - Trips**<br>**Falls on same level - falls to surfaces below**<br>**- poor housekeeping - slippery surfaces uneven surfaces -poor access to work areas climbing on and off plant - unloading materials into excavations wind - falling objects.** | Housekeeping - tidy workplace - guardrails, handholds, harnesses, hole cover, hoarding, no slippery floors/trip hazards - clear/ safe access to work areas - egress from work areas - dust/water controlled - PPE. |
| **Absence of Personal Protective Equipment**<br>**Lack of adequate footwear - head protection - hearing/eye protection –** | Head/face - footwear - hearing/eye - skin – respiratory protection provided - training - maintenance. |

| | |
|---|---|
| **respiratoryprotection - gloves - goggles.** | |
| **Defective or wrong Hand Tools Wrong tool - defective tool - struck by flying debris - caught in or on – missing guards - strains and sprains - dust.** | Right tool for the job - used properly - good condition/ maintenance guards - isolation - eye/face protection - flying debris controlled. |
| **Electricity Electrocution – overhead/underground services- any leads damaged or poorly insulated - temporary repairs -no testing and tagging - circuits overloaded – non use of protective devices.** | Leads good condition and earthed – no temporary repairs - no exposed wires - good insulation - no overloading - use of protective devices - testing and tagging – no overhead/ underground services. |

- **EMERGENCY RESPONSE PLAN (ERP)**

The overall objective of an Emergency Response Plan (ERP) is to make use of the combined

resources at the site and outside services to achieve the following:

1. To localize the emergency and if possible eliminate it;
2. To minimize the effects of the accident on people and property;
3. Effect the rescue and medical treatment of casualties;
4. Safeguard other people;
5. Evacuate people to safe areas;
6. Informing and collaborating with statutory authorities;
7. Initially contain and ultimately bring the incident under control;

The ERP is therefore related to identification of sources from which hazards can arise and the maximum credible loss scenario that can take place in the concerned area. The plan takes into account the maximum credible loss scenario - actions that can successfully mitigate the effects of losses/ emergency need to be well planned so that they would require less effort and resources to control and terminate emergencies, should the same occur.

- **RESPONSE PROCEDURE FOR EMERGENCY TEAM.**

1. Formulate an Emergency Response Team for earthquake response.Using the publicaddress system, inform residents of response procedures discussed above.
2. Inform the necessary authorities for aid.

3. Ensure no person is stuck beneath any debris, in case of a structural failure.
4. Ensure that all occupants standing outside near the buildings are taken to open areas.
5. Ensure that the first aid ambulance and fire tender vehicles are summoned if necessary.
6. Inform the nearby hospitals if there are any injuries.
7. Check the utilities and storage tanks for any damage.

- **RESPONSE FOR LPG LEAKAGE**

1. The affected area should be evacuated and cordoned off immediately
2. Initiate an Emergency Response Team for LPG leakage.
3. Shut down the main valves in the gas bank.
4. Ensure that only concerned personnel are present in the affected area and all other Personnel and visitors are moved to the nearest assembly points.
5. Rescue trapped personnel, also check if any personnel are unconscious in the area and immediately move them outside and provide first aid. Ambulance should be summoned to take injured personnel to the nearest hospital.
6. Personnel in the nearby buildings to close all doors and windows to prevent entry of the leaked gas.
7. Source of leakage to be traced and isolated from all the other areas. And if required use pedestal fans to bring down the gas concentration.
8. In case of a fire follow the instructions in case of fire.

- **RESPONSE IN CASE OF FIRE**

1. Required response during in the event of a fire should be described in signs located in the lobby.
2. On sighting a fire, it should be immediately informed to the fire officer giving the exact location and type of fire in detail.
3. Initiate the Emergency Response Team for fires.
4. If the fire is small, engage in extinguishing the fire using the nearest fire extinguisher.

5. Guide the Emergency Response Team staff to the emergency assembly point.
6. The Emergency Response Team should immediately inform the nearest dispensary and security force. If required a fire tender should be summoned.
7. The response team should immediately move to the point of fire and take all necessary steps tostop the fire. If the fire is not controllable and spreads then the manager in charge should inform the district authorities and call for external help.
8. The Emergency Response Team will provide immediate relief to the injured residents at the scene of incident. Any injured persons should be evacuated on priority to the dispensary or one of the nearest hospitals based on their condition.

- **RESOURCE CONSERVATION**

The project will lead to utilization of various natural resources. As an environmentallyresponsible corporate, the developers endeavor to conserve these resources byjudiciousmanagement and recycling and strive to build up these resources where possible.

**Reduced use of water:** To further minimize the use of available freshwater, variouslow flowfixtures may be provided such as Low flow flushing systems, sensor basedfixtures, tap aerators.Awareness will also be spread amongst the residents

**Treatment and Recycling:** The sewerage generated from the sites will be treated inan onsiteSewage Treatment Plant. This will enable the treated water to be used forflushing andlandscaping thereby reducing the requirement of freshwater for thesepurposes.

**Rainwater harvesting:** The increased hard surface increases the runoff ascompared to theotherwise barren land. It is proposed to harvest this rainwater runoff that will recharge thegroundwater resource while reducing the burden of storm-water management of the cityand eventually natural water bodies. Apart from the openspaces, it is proposed to harvestthe roof top rainwater and surface

runoff. The stormwater will be treated through an oiland grease trap and allowed to flow throughlayers of sand and gravel for filtration prior toreaching the water table, to avoid anypossibility of groundwater contamination.

**Construction materials:** As a large residential group housing colony, the project willrequire various kinds of natural construction materials such as brick, sand, gravel, MS Rodetc. It is proposed for prior estimation of required quantities of thesematerials andprocurement only as per requirement. This will also result in cost-efficiency. Excavatedsoil from the project site will be used within the site to theextent feasible. Top roof will beutilized in landscape, greenery at premises area ofthe project site. Excess soil will bemade available to the construction sites, as perneed.

**Energy:** To conserve the energy resources, good practices will be followed during theconstruction phase such as turning off lights and equipments when not in use, ensuring fuelefficiency of motors and vehicles through proper maintenance andminimal work at night.The principles of energy conservation will also be embeddedin the buildings through useof energy efficient fixtures, maximum availability ofnatural light and use of solar energyfor street lighting and gardening.